

WHAT IS CLAIMED IS:

1. A glass funnel for a cathode ray tube, which has a substantially rectangular opened end at one end and a neck portion at the other end and which constitutes,  
5 together with a glass panel having a substantially rectangular face portion, a glass bulb to be used for a cathode ray tube, wherein the glass constituting the glass funnel contains, by molar percentage, at least 60% of  $\text{SiO}_2$  and at least 7% of  $\text{PbO}$ ; when the molar  
10 percentages of  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$  contained in said glass are represented by  $\text{WNa}$  and  $\text{WK}$ , respectively,  $0.35 \leq \text{WK}/(\text{WNa} + \text{WK}) \leq 0.6$ ; a compressive stress layer is formed by chemical tempering at least in the outer surface of a region containing a position where the tensile stress  
15 formed when the interior of the glass bulb is vacuumed to produce the cathode ray tube, becomes maximum; and either one or both of the outer surface of the chemically tempered region and the inner surface opposite to said outer surface, are colored by ion exchange coloration.
- 20 2. The glass funnel for a cathode ray tube according to Claim 1, wherein a compressive stress layer is formed by chemical tempering at least on the outer surface of either one or both of a region containing a position where the thermal stress formed during the assembling of  
25 the cathode ray tube, becomes maximum, and a region containing a position where the thermal stress formed during the operation of the cathode ray tube, becomes

maximum, and either one or both of the outer surface of the chemically tempered region and the inner surface opposite to said outer surface, are colored by ion exchange coloration.

5 3. The glass funnel for a cathode ray tube according to Claim 2, wherein tempering ions doped into the glass by the chemical tempering are potassium ions, and ions for ion exchange coloration are at least one member selected from the group consisting of silver ions, cobalt ions,  
10 nickel ions, copper ions, iron ions and tin ions.

4. The glass funnel for a cathode ray tube according to Claim 1, wherein the concentration of potassium ions doped into the glass by the chemical tempering, is distributed substantially in a step function manner in  
15 the thickness direction of the above compressive stress layer.

5. The glass funnel for a cathode ray tube according to Claim 1, wherein when the maximum value of the tensile stress formed on the outer surface of the funnel when the interior of the glass bulb is vacuumed, is represented by  $\sigma_{VF}$ , and the maximum compressive stress value of the above compressive stress layer is represented by  $\sigma_{cm}$ , the relation between said  $\sigma_{cm}$  and  $\sigma_{VF}$  satisfies  $0.03 \leq |\sigma_{VF} / \sigma_{cm}| \leq 0.5$ .

25 6. The glass funnel for a cathode ray tube according to Claim 1, wherein the electron beam deflection angle of the glass funnel is at least  $120^\circ$ .

7. A process for producing a glass funnel for a cathode ray tube, which comprises chemically tempering a region of glass to be chemically tempered in a glass funnel for a cathode ray tube, by a field-assisted type chemical  
5 tempering method, in which said region of glass is contacted with a molten salt containing alkali ions having an ionic radius larger than that of alkali ions in said glass, and at the same time, a voltage is applied to said glass from both sides thereof to have the alkali  
10 ions in the glass ion-exchanged with the alkali ions in the molten salt having an ionic radius larger than that of the alkali ions in the glass, wherein ions for ion exchange coloration are permitted to coexist in said molten salt so that the chemical tempering region of  
15 glass is subjected to ion exchange coloration.

8. The process for producing a glass funnel for a cathode ray tube according to Claim 7, wherein the molten salt is potassium nitrate, and from 5 to 50 mol% of silver nitrate is incorporated to the molten salt.